US Army Corps of Engineers®
Engineer Research and Development Center

Coastal and Inland Navigation Studies

Description

The U.S. Army Corps of Engineers (USACE) mission is to facilitate the safe, reliable, and economically efficient movement of vessels, and it does so by constructing and maintaining navigation channels and harbors, and regulating water levels on inland waterways. The USA's 25,000 miles of navigable waterways support commercial navigation, national defense, and recreation. Expertise of ERDC's Coastal and Hydraulics Laboratory (CHL) staff provide research and development and engineering investigations for both coastal and inland navigation projects.

Capabilities

CHL support for USACE navigation projects includes design of waterway channels, harbor areas, anchorages, turning basins, locks and dams. CHL also provides assistance in design of structures to protect and maintain the channels including protective jetties and breakwaters in coastal areas and dikes and bendway weirs on inland channels. Customers include Corps Districts, other Federal agencies, states, and foreign governments.

Pilot turning curve from reserve channel in Ship/Tow Simulator

Supporting Technology

Engineering analysis tools include physical models, computer design models, numerical models, and ship and tow simulations.

Benefits

The emphasis of CHL navigation studies is to provide environmentally sustainable designs that will improve efficiency, safety, and capacity of navigation projects that minimize risk and maximize reliability. The products make use of environmental, economic, and engineering aspects to improve the performance of the marine transportation infrastructure.

Success Stories

Some of the results of this capability include the following:

- Houston-Galveston Ship Channel was enlarged from a 40-ft depth by 400-ft width to a 45-ft depth by 530-ft width. Physical and numerical investigations recommended changes allowing barge traffic to safely coexist with deep-draft navigation.
- Port Jersey, New York Harbor was evaluated for deepening and realignment form 38 ft to 50 ft A final improved channel was developed through simulation models. The result allowed a large class of container ships to use the port.
- Barber's Point Harbor, Hawaii. Physical and numerical investigations to determine optimum vessel draft/entrance-channel depth combinations that could safely transit the entrance channel and harbor.

Point of Contact

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